

Laparoscopic Management of Gallbladder-Associated Ectopic Liver

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ABSTRACT

Ectopic liver is a rare entity discussed infrequently in the surgical literature. Liver ectopia develops due to rests of liver parenchyma retained at various intraperitoneal or intrathoracic locations during migration of the liver proper during embryologic development. It is usually found during exploration for other diagnoses, commonly diseases of the biliary tree. We report a case in which a 3.7-cm mass associated with the fundus of the gallbladder was visualized preoperatively by computed tomography and identified histologically as ectopic liver after diagnostic laparoscopy and cholecystectomy with en bloc resection of the associated mass.

Key Words: Ectopic liver, Liver heterotopia, Laparoscopic.

INTRODUCTION

Ectopic liver is a rare entity identified most commonly during abdominal exploration for other indications. Anatomic anomalies of the liver have been classified as accessory lobe of the liver with attachment to native liver, and ectopic liver tissue without connection to the liver proper.¹ Liver ectopia is the least common of the 2 abnormalities described. Ectopic liver has been found above and below the diaphragm. Gallbladder-associated ectopic liver is the most common intraabdominal location, and reports of size range from microscopic tissue to 3 cm.^{2,3} We report a case in which a 3.7-cm mass associated with the fundus of the gallbladder was visualized preoperatively by computed tomography and identified histologically as ectopic liver after diagnostic laparoscopy and cholecystectomy with en bloc resection of the associated mass. Recent literature discusses the potential for increased risk of hepatocellular carcinoma arising in ectopic liver.⁴

CASE REPORT

A 38-year-old African-American female presented to her primary care physician with a 3-month history of postprandial right upper quadrant pain. Biliary disease was suspected, and right upper quadrant ultrasound revealed a 2.7-cm mass adjacent to the gallbladder. Computed tomography was performed and identified a 3-cm mass in the right upper quadrant. The mass was described as solid, hyperdense to the liver, and enhanced on intravenous administration of contrast. Surgical consultation was obtained. The patient underwent an elective diagnostic laparoscopy. Intraoperative findings were of a maroon, solid mass attached only to the fundus of the gallbladder (**Figure 1**). Cholecystectomy with en bloc resection of the mass was carried out laparoscopically. The patient was discharged the following morning after an uneventful hospital course. Microscopic sections of the mass showed ectopic hepatic parenchyma with chronic triaditis (**Figure 2**).

In previous case reports of gallbladder-associated ectopic liver, the diagnosis was made incidentally at exploration for other indications, most commonly for diseases of the

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Figure 1. Mass attached to the fundus of the gallbladder after laparoscopic en bloc resection with cholecystectomy.

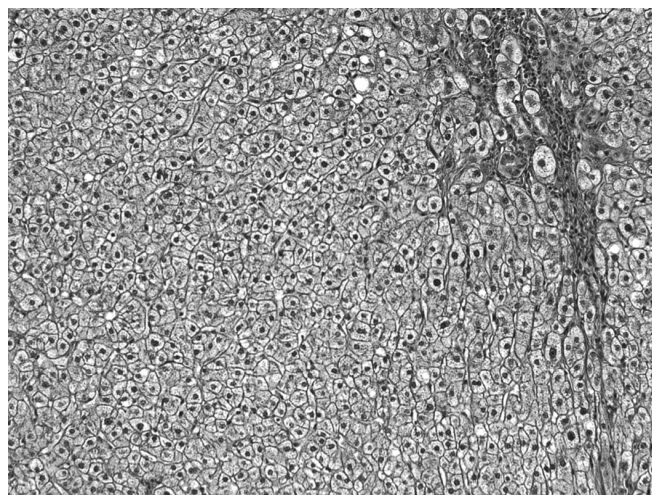


Figure 2. Histology of the mass showing ectopic liver parenchyma with chronic inflammatory cells consistent with triaditis.

gallbladder. To the best of our knowledge, only one other report³ has been made of gallbladder-associated ectopic liver imaged preoperatively. Hamdani et al³ reported a case with computed tomography performed preoperatively that revealed a mass of homogenous tissue with similar density to the neighboring liver. The largest sample of anatomically aberrant liver reported is a 12-cm accessory liver attached to the left lobe of the liver.⁵ The largest reported gallbladder-associated specimen was previously 3 cm.³ We believe that our report is the largest example of gallbladder-associated ectopic liver.

The cause of ectopic liver is aberrant migration during embryologic development of the liver proper.⁶ The liver and biliary system originate from the foregut during the

fourth week in utero. The hepatic diverticulum emerges from the foregut endoderm and extends into the septum transversum. The hepatic tissue divides into a cephalad pars hepatica and caudal pars cystica. The pars hepatica, which eventually becomes the liver proper, becomes a center for embryologic hematopoiesis by 6 weeks. The pars cystica will become the gallbladder with the cystic duct arising from a stalk that connects the 2 divisions of the hepatic diverticulum. The common locations of ectopic liver are easily explained by this theory of abnormalities of migration. The majority of cases of ectopic liver are attached to the gallbladder. Other locations reported include the adrenal glands, pancreas, spleen, falciform ligament, pylorus, umbilicus, retroperitoneum, intrapleural, extrapleural, esophagus, and pericardium.^{3,7-12}

The spectrum of microscopic findings in liver ectopia includes normal parenchyma, fatty infiltration, cirrhosis, and hepatocellular carcinoma. A consistent finding in ectopic liver is that similar changes are present in both ectopic tissue and liver proper.¹³ Several cases of cirrhosis in ectopic liver have been reported in patients diagnosed with cirrhosis preoperatively or through intraoperative biopsy.¹³⁻¹⁵ A recent series⁴ reviewed ectopic and accessory liver tissue and the possibility of an increased incidence of hepatocellular carcinoma arising in the aberrant tissue. Arakawa et al⁴ suggest that the ectopic tissue is susceptible to carcinogenesis possibly due to metabolic abnormalities related to the lack of normal venous or biliary drainage.

Ectopic and accessory liver are infrequently described in the literature. These distinct entities should be considered in the differential diagnosis for an intraperitoneal or intrathoracic mass. The likelihood of the diagnosis increases with right upper quadrant location and computed tomography identifying the mass as homogenous with liver parenchyma. Association of anatomic anomalies of the liver and hepatocellular carcinoma has been described in the literature and should be considered during the planning for definitive management of the lesion. Laparoscopic management of ectopic liver can be feasible as in the case that we have presented.

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